ADDITIONAL COLLECTIONS OF BOTRYCHIUM LUNARIOIDES FROM TEXAS AND OKLAHOMA AND COMMENTS ON ITS DORMANCY

by

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Only one plant of Botrychium lunarioides (Michx.) Sw. has been reported from Texas (Thomas 1979). This plant was collected by Thomas from San Augustine County in 1972. On a recent collecting trip to southeast Oklahoma, April 10, 1981, the authors collected several plants of Botrychium lunarioides from Douglassville Cemetery in Cass County in northeast Texas. The cemetery had already been mown so the fertile parts of the fronds of the plants are missing (Thomas #75189, Briley #2325, and Carroll).

Botrychium lunarioides has been reported from one site in Choctaw County, Oklahoma and one in McCurtain County (Thomas 1978b). On April 6, 1980 Briley found a large population of several hundred plants in a grazed pasture west of Idabel in McCurtain County (Briley #1252). Until this population was discovered only a total of five plants had been seen in Oklahoma. A trip was made to the site by the authors on April 11, 1981 to study the population. Although the area was searched extensively, only about fifteen plants were seen (Thomas #75341, Briley #2477, and Carroll). One other collection was made from McCurtain County by the authors on April 10, 1981 (Thomas #75224, Briley #2360, and Carroll).

The senior author has collected Botrychium lunarioides from Georgia, Alabama, Florida, Louisiana, Texas, Oklahoma, and Arkansas. Although this species is one of the hardest of plants to see in the field because of the way its prostrate frond blends in with Trifolium, Oxalis, and other plants, this fern appears to remain dormant during dry springs. The summer, fall, and winter of 1980 was very dry and this was followed by an unusually dry spring in 1981.

Thomas has visited many sites where he has previously observed large populations of Ophioglossum crotalophoroides, O. petiolatum, and O. nudicaule var. tenerum in Louisina during the spring of 1981 and has noted a drastic reduction of the number of plants with leaves above ground during this dry spring.

Two patterns of dormancy seem to be illustrated by Ophioglossum petiolatum, O. nudicaule var. tenerum, O. crotalophoroides, and Botrychium lunarioides. O. petiolatum and O. nudicaule var. tenerum will break dormancy during any season of the year after at least a lengthy wet period. Although these two species are more common in the spring than in other seasons, both can be collected in Louisiana during any month. One large population of O. nudicaule var. tenerum in Ouachita Parish has been observed as dormant during each of the twelve months as well as having fertile fronds each month depending on moisture. O. petiolatum seems to follow the same pattern. O. crotalophoroides and Botrychium lunarioides break dormancy only during the spring. Population density differences observed in the field by Thomas would indicate that during dry springs many plants of these two perennial species remain dominant. Although O. nudicaule var. tenerum and O. petiolatum were both recollected in Oklahoma by the authors on April 10, 1981 (Thomas #75222, Briley #2358, and Carroll and Thomas #75227, Briley #2363, and Carroll, respectively), reduced numbers of Ophioglossum was observed there also.

The paucity of Botrychium lunarioides plants observed at the large McCurtain County location mentioned above would support the conclusion about this species remaining dormant in dry springs. This grape fern is also rare in Arkansas (Thomas 1978a). The authors visited the site of the Sevier County, Arkansas collection on April 12, 1981. Although the largest population known from the state occurs here, no plants were found and Ophioglossum crotalophoroides was also not seen. Thomas and John McCoy, another of his graduate students, visited the Union County location for B. lunarioides and O. petiolatum on April 24, 1981. Only one plant was seen (Thomas #75641 and McCoy #852) and O. petiolatum and O. crotalophoroides showed greatly reduced populations there also.

Based on twelve years of field experience throughout the range of these four species, but especially on experience in Louisiana, Arkansas, and Texas, by Thomas, it is concluded that Botrychium lunarioides and Ophioglossum crotalophoroides will remain dormant during unusually dry springs. O. petiolatum and O. nudicaule var. tenerum will remain dormant during the same conditions but will break dormancy later in the year if sufficient moisture occurs. Since all three of these species of Ophioglossum are southern in distribution, at the northern limits of their range the last two species probably function in a similiar manner of O. crotalophoroides and Botrychium lunariodes and break dormancy only during springs with sufficient moisture. The habitats of O. crotalophoroides and B. lunarioides are usually sandier and drier than those of the other two species and therefore their habitat dries out faster than that of O. petiolatum and O. nudicaule var. tenerum. All four species are perennial and the above ground portion (fertile and sterile segments of fronds) is short lived. O. nudicaule var. tenerum and O. petiolatum forms extensive populations by vegetative propagation (this can especially be observed in sand near Battleship Alabama in Mobile Bay, Mobile County, Alabama). No vegetative propagation has been observed in either O. crotalophoroides or B. lunarioides.

Literature cited

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